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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/744,951	04/26/2002	Won-Bae Lee	P20572	3630
7055	7590	03/12/2004	EXAMINER	
GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191			DOVE, TRACY MAE	
			ART UNIT	PAPER NUMBER
			1745	

DATE MAILED: 03/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/744,951

Applicant(s)

LEE ET AL.

Examiner

Tracy Dove

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 April 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5/7/01.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: IDS 5/14/03.

## **DETAILED ACTION**

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

The information disclosure statements (IDS) submitted on 5/7/01 and 5/14/03 have been considered by the examiner.

### ***Specification***

The disclosure is objected to because of the following informalities: on page 6, lines 8 “the membrane structure 18a” should recite “the membrane structure 17a”.

Appropriate correction is required.

### ***Claim Objections***

Claim 7 is objected to because of the following informalities: the claim contains improper group language. Examiner suggests “are composed of a material selected from the group consisting of silicon . . . and stainless steel”. Appropriate correction is required.

Claim 10 is objected to because of the following informalities: the claim contains improper group language. Examiner suggests “is composed of a material selected from the group consisting of silicon . . . and aluminum coated with a nonconductive material”.

Appropriate correction is required.

Claim 11 is objected to because of the following informalities: “a diameter smaller than the first membrane” should be amended to recite “a diameter smaller than a diameter of the first membrane” to clarify the claim. Appropriate correction is required.

Claim 13 is objected to because of the following informalities: “The reserve batter” should be “The reserve battery”. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites “characterized in that the reaction container includes a separator spaced by the electrolyte container, the separator having a region composed of a first membrane . . . breakable upon reception of the external impact”, which is confusing. The specification and drawings teach the electrolyte container 11 includes a membrane 11a that is breakable upon reception of an external impact. The separator 16 does not break upon reception of an external impact. Furthermore, while the separator 16 is contained in the reaction container 29, it is not spaced by the electrolyte container 11. The part of the inert reserve battery that breaks to activate the battery is a thinned membrane 11a that is part of a wall that separates the electrolyte container 11 from the reaction container 29, not the separator 16 (see Figures).

Claim 4 recites “wherein the separator of the reaction container has another region composed of a second membrane”, which is confusing. See rejection of claim 1 regarding the term “the separator”. It is unclear how the separator has two separate membranes that face each other, if the reaction container includes a separator spaced by the electrolyte container.

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Examiner suggests claim 4 be amended to recite “where the reaction container contains a region comprising a second membrane . . . so as to face the first membrane”.

Claims 5, 6, 10 and 11 recite the limitation "the member for breaking" in line 2. There is insufficient antecedent basis for this limitation in the claims.

Claim 6 recites “the member for breaking the first membrane is provided on an external surface of the reaction container and the electrolyte container for breaking the first and the second membranes”. It is unclear how the member is provided on both an external surface of the reaction container and the electrolyte container. Examiner suggests “a member for breaking the first and second membranes upon reception of the external impact to activate the battery cell is provided on an external surface of the reaction container”.

To the extent the claims are understood in view of the 35 U.S.C. 112 rejections above, note the following prior art rejections.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2 and 4-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Schisselbauer, US 4,968,567.

Schisselbauer teaches an electrochemical cell in an inactive or electrolyte storing state (reserve battery) including an electrolyte reservoir containing an electrolyte. A cell stack or assembly comprising a plurality of pairs of opposite polarity electrochemical plates is located

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within a cell stack container (reaction container) that may be formed as an extension of the electrolyte reservoir. A wall is provided with a hole to define an electrolyte conduit between the electrolyte reservoir and the cell stack container. The hole is covered by a rupturable diaphragm (first membrane) forming a fluid-tight seal across the hole. A selectively actuatable lance is positioned with a pointed first end located adjacent to the diaphragm and the other second end is arranged to project through a hole in a wall of the cell stack container to a location external of the cell stack container. The second end is covered with a flexible bellows 26 to create a fluid-tight seal with an external surface of the cell stack container (second membrane). The lance can be selectively propelled into the diaphragm by an operator (external impact) to rupture the diaphragm and activate the cell (1:45-2:19). The diaphragm is made of stainless steel to avoid corrosion problems with the electrolyte (3:26-28). The figure shows the diaphragm 16 has a relatively thinner thickness than the remaining part of the wall separating the electrolyte reservoir from the cell stack container. The electrolyte reservoir is closed at an upper end by a cap (sealing member) forming a fluid-tight seal.

Thus the claims are anticipated.

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Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Merz, US 3,929,508.

Merz teaches a reserve battery comprising a means for separating the electrolyte solvent and the electrochemical cells until electricity is needed and a means for puncturing the separating means and mixing the electrolyte solvent with the dry electrochemical cells (abstract). The reserve battery includes a battery housing (reaction container), a diaphragm plate and a

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collapsible bellows (electrolyte container). The diaphragm plate connects the battery housing to the collapsible bellows and includes a region of reduced cross section or reduced thickness. The bellows structure contains a lance (member for breaking) mounted on a base and supported by struts. Should electrical energy be necessary, a person would take the battery and screw a cap in a downward direction until the lance punctures the diaphragm plate (external impact). The advancement of the cap drives the electrolyte into the battery housing (2:10-63).

Thus the claims are anticipated.

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Claims 1, 2 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Hausler et al., US 3,839,092.

Hausler teaches an electrochemical button cell that can be easily activated by filling with an electrolyte from a container (abstract). Precharged, dry electrodes are arranged in the body of the button cell (reaction container) shielded with a cell lid that has openings so as to provide access there by a liquid. Above the lid a container is provided which is filled with electrolyte. The container is capped by a membrane lid extending over the rim of the cell. The activation procedure comprises merely pushing (external impact) in the membrane lid, whereupon the electrolyte container bursts and the electrolyte is forced into the electrode chamber of the button cell through the perforations in the lid (1:62-2:10). The figure shows the area of the wall separating the electrolyte from the electrodes is thinner in a region where the openings are provided. The thickness of the material for the container will depend on the desired activation pressure. The strength of such material can be selected such that strong finger pressure will be

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sufficient to press in the membrane lid and burst the electrolyte container (4:6-9). After insertion of the electrolyte, the electrolyte container is sealed by a weld (3:33-40).

Thus the claims are anticipated.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schisselbauer, US 4,968,567.

See discussion of Schisselbauer above regarding claims 1 and 2.

Schisselbauer does not explicitly teach the material of the electrolyte reservoir or the material of the lance.

However, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because Schisselbauer teaches the material of the diaphragm would have been selected to be compatible with the electrolyte to avoid corrosion problems. A material that is compatible with the electrolyte and avoids corrosion is stainless steel (3:26-28). One of skill in the art would have been motivated to use stainless steel for the electrolyte reservoir and/or the cell container in order to avoid corrosion problems. Schisselbauer suggests that stainless steel may be used as the material of the containers because it is compatible with the electrolyte and avoids corrosion problems.

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Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hausler et al., US 3,839,092 in view of Linden, Handbook of Batteries (pages 17.8-17.9).

See discussion of Hausler above regarding claims 1 and 12.

Hausler does not explicitly state the material of the separator that separates the positive and negative electrodes.

However, Linden teaches that separators for reserve batteries are nonconductive materials such as glass beads or woven fabrics (page 17.8).

Therefore, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because Linden teaches materials such as glass beads or woven fabrics are known for use as separators in reserve batteries. One of skill in the art would have been motivated to combine the teachings of Hausler and Linden because both teach reserve batteries having silver chloride positive electrodes, magnesium negative electrodes and separators (see 17.8 and Table 17.2 of Linden and 3:17-21 of Hausler).

#### ***Allowable Subject Matter***

Claims 8-11 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

The following is a statement of reasons for the indication of allowable subject matter: the claims are directed toward a reserve battery having an electrolyte container and a reaction container wherein a wall separating the electrolyte container from the reaction container has a thinner region forming a first membrane. The surface of the reaction container facing the first membrane contains a second membrane, wherein the first and the second membranes have a thickness less than 20  $\mu\text{m}$ . The prior art does not teach or suggest the reserve cell of claim 8.

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Specifically, a reserve cell having both the first and the second membrane wherein the first and the second membranes have a thickness less than 20  $\mu\text{m}$  is not disclosed in the prior art.

Alternatively, the prior art does not teach a reserve battery having an electrolyte container and a reaction container wherein a wall separating the electrolyte container from the reaction container has a thinner region forming a first membrane. The upper surface of the electrolyte container is flexible and a member for breaking the first membrane is protruded toward the first membrane from an inner wall of the electrolyte container wherein the upper surface has a thickness of less than 50  $\mu\text{m}$ . The prior art does not teach the reserve cell of claim 9.

Specifically, a reserve cell having an electrolyte container with a flexible upper surface and a member for breaking the first membrane protruding toward the first membrane from an inner wall of the electrolyte container, wherein the upper surface has a thickness of less than 50  $\mu\text{m}$  is not disclosed in the prior art.

The prior art does not teach the reserve cell of claims 10 and 11 because the prior art does not teach or suggest the claimed member materials.

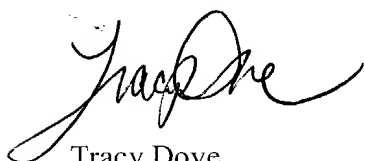
### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tracy Dove whose telephone number is 571-272-1285. The examiner can normally be reached on Monday-Thursday (9:00-7:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Tracy Dove", with a stylized, flowing script.

Tracy Dove  
Patent Examiner  
Technology Center 1700  
Art Unit 1745

March 5, 2004